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Epidemiologic Notes and Reports

Human Rabies — Texas

The first case of human rabies occurring in the United States since March 1983 was diagnosed July 27, 1984, in Houston, Texas. The patient, a 12-year-old Laotian refugee, had no known history of exposure to a rabid animal and had not traveled outside Texas since arriving in the United States in 1980.

The patient was in good health until July 11, when she complained of a headache. Over the next 4 days, she developed a sore throat, fever, fatigue, difficulty swallowing, and, finally, leg weakness. She was admitted to a community hospital in Houston on July 15. Initial evaluation disclosed a fever of 40 C (104 F), pharyngitis, retropharyngeal air, and a pneumomediastinum. The heart rate fluctuated between 100 beats/minute at rest to 280/minute when the patient was moved. She was treated for presumptive sepsis with antibiotics and corticosteroids. The following day, she was transferred to a university hospital because of the extreme lability of her heart rate and blood pressure. Provisional admitting diagnosis was Guillain-Barré syndrome. The patient was alert and oriented. There were no symptoms or signs except inability to swallow saliva and generalized weakness, more pronounced in the lower extremities; sensory examination was normal. Lumbar puncture revealed normal opening pressure, cell count, and protein. The patient was intubated because of profuse oral secretions, but rapidly became ventilator-dependent. On July 20, increased agitation was noted. Over the next 3 days, periods of decreased alertness and inability to follow commands developed. On July 24, her pupils became dilated and nonreactive to light. A brain biopsy was performed on July 27 after herpes simplex virus was recovered from a throat culture and a temporal focus of seizure activity developed on a repeat EEG. Histopathology revealed eosinophylic intracytoplasmic inclusions; electron microscopy revealed rhabdovirus, and the diagnosis of rabies was confirmed by fluorescent antibody testing. Experimental therapy with ribavirin was initiated. The patient died August 8, 27 days after onset of illness.

Sera and cerebrospinal fluid (CSF) were tested at CDC for rabies neutralizing antibodies using the rapid fluorescent focus inhibition test. On July 21, day 11 of illness, serum titer was lower than 1:5; on July 28, day 18, it had risen to 1:280. Appearance of neutralizing antibody in the serum may have been delayed because of the administration of corticosteroids early in the illness. CSF revealed a 1:11 titer on July 25. Rabies virus was isolated from a second

Human Rabies — Continued

brain biopsy obtained on July 31. Monoclonal antibody studies of the isolate have shown it to be a classic rabies virus, but it does not resemble two of the most common rabies virus substrains isolated in Texas from the Mexican free-tailed bat or from Texas skunks.

A total of 142 individuals (123 medical and paramedical personnel and 19 friends and family) with some degree of contact with the patient received postexposure prophylaxis.

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Editorial Note: No more than five cases per year of human rabies have been reported in the United States since 1960. Despite its rarity, rabies should be considered in the differential diagnosis of progressive neurologic diseases, even in the absence of furious behavior, classic hydrophobia, or history of exposure.

In the present case, the pathogenesis of the retropharyngeal and mediastinal emphysema is unknown. The patient had many features of the less common paralytic form of rabies, in which hyperactivity is absent and paralysis dominates the clinical picture (*1*). The paralysis may ascend, as in the present case, mimicking Guillain-Barré syndrome. This presentation occurs in approximately 20% of human rabies cases, and appears more often after exposure to rabid bats and possibly after postexposure therapy with nerve-tissue vaccines available in some countries outside the United States.

The patient had no history of exposure to an animal known or suspected to be rabid before or after arrival in the United States. The possibility of acquisition outside the United States is remote. Although an exposure can be identified in most cases of rabies, no exposure has been identified in eight (19%) of the 43 cases occurring in the United States from 1960 through the present (*2*). Incubation periods of less than 1 year are found in 99% of cases; the longest well-documented incubation period was 701 days (*3*).

The large number of persons receiving postexposure prophylaxis because of contact with the patient demonstrates that tremendous costs may be incurred as a result of undiagnosed cases. The cost of a single postexposure regimen of five doses of human diploid cell rabies vaccine and 20 IU/kg of human rabies immune globulin is approximately $400 for the biologics alone. Postexposure therapy is indicated in certain circumstances after contact with a human rabies case. Although never reported, the theoretic possibility of human-to-human bite transmission exists, as does that of nonbite transmission by contamination of scratches, abrasions, or open wounds with potentially infectious material, such as saliva, urine, or brain tissue. Transmission between humans has only been documented in four persons who received corneal transplants from donors who died of undiagnosed rabies encephalitis. Once rabies is suspected, adherence to contact isolation procedures (*4*) can markedly reduce the need for postexposure therapy in health-care workers. Each potential exposure to human rabies should be carefully evaluated to minimize unnecessary rabies prophylaxis (*5*).

References

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International Notes

Cutaneous Nocardiosis in Cancer Patients Receiving Immunotherapy Injections—Bahamas

From March 1982 to March 1984, 16 persons attending a private cancer immunotherapy clinic in Freeport, Grand Bahama Island, Bahamas, developed abscesses at injection sites after being treated with subcutaneous injections of human serum proteins. The protein injections are prepared by the clinic and then self-administered by the patients. No randomized clinical trials have been performed to determine the effectiveness of the injections. The clinic, which opened in 1977, treats approximately 350 new patients annually.

Organisms recovered from abscesses included *Nocardia asteroides* (seven patients), *Staphylococcus aureus* (two), *Escherichia coli* (one), and an unidentified *Actinomyces*-like organism (one). One culture yielded no growth; four persons were not cultured. One patient with cutaneous nocardiosis also had pneumonia; *N. asteroides* was isolated from respiratory secretions obtained during bronchoscopic examination.

Information available from clinic records was not sufficient to define incubation periods or clinical courses of abscesses. However, telephone interviews with patients and their physicians in the United States regarding documented *Nocardia* infections indicated that the incubation period ranged from 3 hours to 48 hours following injection. In general, patients developed abscesses at multiple injection sites, ranging from 2 cm to 20 cm in diameter. Treatment included incision and drainage, along with antimicrobials such as trimethoprim/sulfamethoxazole. In two patients, however, abscesses were refractory to combination medical and surgical treatment.

Eleven of these 16 persons developed abscesses between November 15, 1983, and March 1, 1984; the attack rate for this period based on a survey of patient charts was 4.5 cases per 100 patients treated. The dates of abscess onset were clustered in three periods: November 16-25, 1983; December 20-30, 1983; and February 16-March 1, 1984. These clusters suggested repeated common-source exposures.

The only common exposure identified among all 16 patients was the self-administration of subcutaneous serum protein injections produced by this clinic. The clustering of the 11 cases in late 1983 and early 1984 suggested that either several lots of serum protein were contaminated during final packaging or that, on several separate days, open vials of serum were contaminated when the daily injections were drawn up. Since medication lot number and patient injection records were not available, it was not possible to test either hypothesis. Limited access to medical records precluded a thorough epidemiologic investigation.

Four serum proteins for injection are produced at the clinic. The proteins are prepared from normal human serum and clots from blood specimens taken from the oncology patients undergoing treatment. Serum and clots are processed by high-speed centrifugation, heat treatment, and ether extraction to produce the proteins. The proteins are reportedly filtered twice through an 0.8-micron filter and then a 0.45-micron filter, packaged in a 6-ml flip-top vial, and frozen until used. The daily set of injections for each resident patient is prepared at the clinic laboratory by filling each syringe directly from an open, multi-dose vial. These syringes are then capped with needles and delivered to the patient for self-administration later. Each patient in residence self-administers six to 12 injections daily; injection sites are rotated between arms, thighs, shoulders, abdomen, and buttocks.

One vial of each of the four protein injections was obtained for culture at CDC. None of the vials tested was sterile, although *N. asteroides* was not recovered from any of them. Two

Cancer Patients – Continued

Staphylococcus species, two *Bacillus* species, one *Acinetobacter* species, and one *Moraxella*-like species were recovered from the protein injections.

It was not possible to identify an environmental source of contamination of the protein vials. It was noted, however, that the protein production area was immediately adjacent to several rooms housing large numbers of laboratory mice used for research.

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Editorial Note: *N. asteroides* is an aerobic, gram-positive bacterium commonly found in soil. In tissue sections or pus, *N. asteroides* appears as a beaded branching filament that may be partially or completely acid-fast. *N. asteroides* grows well on Lowenstein-Jensen medium at 30 C to 37 C; however, it will also grow on blood agar and Saboraud agar. Colonies often appear by 3 days, but growth may take up to 1 week. Laboratories may fail to isolate *Nocardia* from clinical specimens if plates are discarded after 48 hours (*1*).

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TABLE I. Summary—cases specified notifiable diseases, United States

Disease	33rd Week Ending			Cumulative, 33rd Week Ending		
	August 18, 1984	August 20, 1983	Median 1979-1983	August 18, 1984	August 20, 1983	Median 1979-1983
Acquired Immunodeficiency Syndrome (AIDS)	83	N	N	2,558	N	N
Aseptic meningitis	277	628	397	3,552	5,256	4,235
Encephalitis: Primary (arthropod-borne & unspec.)	32	81	52	587	849	705
Post-infectious	1	2	2	67	64	64
Gonorrhea: Civilian	17,864	18,387	20,972	514,911	562,150	615,927
Military	401	529	512	13,355	15,420	17,246
Hepatitis: Type A	411	359	459	13,109	13,130	16,046
Type B	477	466	383	15,719	14,863	12,814
Non A, Non B	68	65	N	2,324	2,174	N
Unspecified	120	150	203	3,707	4,533	6,366
Legionellosis	6	13	N	356	451	N
Leprosy	7	6	5	142	161	134
Malaria	35	22	22	554	487	658
Measles: Total*	24	14	27	2,168	1,196	2,506
Indigenous	23	13	N	1,921	999	N
Imported	1	1	N	247	197	N
Meningococcal infections: Total	26	38	36	1,904	1,931	1,931
Civilian	26	38	36	1,899	1,916	1,916
Military	-	-	-	5	15	14
Mumps	31	25	35	2,108	2,360	4,136
Pertussis	42	85	54	1,233	1,403	874
Rubella (German measles)	8	7	33	500	745	1,941
Syphilis (Primary & Secondary): Civilian	582	699	678	17,453	20,432	19,051
Military	2	6	6	214	262	238
Toxic Shock syndrome	7	6	N	277	292	N
Tuberculosis	380	505	505	13,385	14,621	16,832
Tularemia	15	9	8	197	185	146
Typhoid fever	6	13	14	195	244	287
Typhus fever, tick-borne (RMSF)	35	56	52	550	813	808
Rabies, animal	162	128	133	3,234	4,057	4,057

TABLE II. Notifiable diseases of low frequency, United States

	Cum. 1984		Cum. 1984
Anthrax	1	Plague	17
Botulism: Foodborne	7	Poliomyelitis: Total	2
Infant (Tenn. 1, Wash.1)	63	Paralytic	2
Other	5	Psittacosis (Tex. 2)	53
Brucellosis (Ala. 1)	65	Rabies, human	1
Cholera	-	Tetanus (Fla. 1)	35
Congenital rubella syndrome (Calif. 1)	4	Trichinosis (Mass. 1)	57
Diphtheria	-	Typhus fever, flea-borne (endemic, murine) (Tex. 1)	14
Leptospirosis	10		

*One of the 24 reported cases for this week was imported from a foreign country or can be directly traceable to a known internationally imported case within two generations.

TABLE III. Cases of specified notifiable diseases, United States, weeks ending August 18, 1984 and August 20, 1983 (33rd Week)

Reporting Area	AIDS	Aseptic Meningitis	Encephalitis		Gonorrhea (Civilian)		Hepatitis (Viral), by type				Legionellosis	Leprosy
			Primary	Post-infectious			A	B	NA,NB	Unspecified		
	Cum. 1984	1984	Cum. 1984	Cum. 1984	Cum. 1984	Cum. 1983	1984	1984	1984	1984	1984	Cum. 1984
UNITED STATES	2,558	277	587	67	514,811	562,150	411	477	68	120	6	142
NEW ENGLAND	87	32	34	1	14,692	14,179	4	27	1	19	1	7
Maine	-	2	-	-	597	714	-	-	-	-	-	-
N.H.	1	10	5	-	412	450	-	-	-	-	-	-
Vt.	-	2	3	-	232	263	-	-	-	-	-	-
Mass.	47	9	18	-	6,026	6,127	-	13	1	18	-	5
R.I.	6	6	-	-	988	763	2	6	-	-	1	2
Conn.	33	3	8	1	6,437	5,862	2	8	-	1	-	-
MID ATLANTIC	1,121	52	73	8	70,835	71,755	37	69	4	5	-	25
Upstate N.Y.	109	13	27	5	10,580	11,383	8	9	-	1	-	2
N.Y. City	800	6	4	-	29,689	28,957	7	21	-	1	-	23
N.J.	159	12	19	-	11,959	13,342	12	18	-	2	-	-
Pa.	53	21	23	3	18,627	18,073	10	20	4	1	-	-
E.N. CENTRAL	115	57	144	17	71,174	80,893	18	58	8	10	1	6
Ohio	15	20	45	9	18,736	21,422	5	13	-	4	1	2
Ind.	16	5	31	-	8,091	7,805	3	12	3	2	-	-
Ill.	60	1	17	6	15,769	22,902	2	4	1	1	-	2
Mich.	15	31	34	-	20,633	21,689	8	29	4	3	-	2
Wis.	9	-	17	2	7,943	7,075	-	-	-	-	-	-
W.N. CENTRAL	26	13	41	1	24,834	26,356	22	24	3	1	1	1
Minn.	7	1	16	-	3,749	3,683	5	-	-	-	-	-
Iowa	1	-	17	-	2,698	2,867	-	2	-	-	1	1
Mo.	13	5	4	-	12,004	12,988	3	15	1	-	-	-
N. Dak.	-	3	-	-	249	275	-	-	-	-	-	-
S. Dak.	-	1	-	1	593	713	4	-	-	-	-	-
Nebr.	2	-	1	-	1,719	1,627	1	2	-	-	-	-
Kans.	3	3	3	-	3,822	4,203	9	5	2	1	-	-
S. ATLANTIC	384	44	95	14	130,416	144,832	35	92	12	15	3	6
Del.	4	-	1	-	2,342	2,593	-	-	-	-	1	-
Md.	24	8	23	-	14,789	18,329	1	22	2	-	-	-
D.C.	54	-	-	-	9,431	9,992	-	-	-	-	-	1
Va.	19	11	22	5	12,421	12,833	-	9	-	7	2	4
W. Va.	4	1	7	-	1,607	1,515	-	1	1	-	-	-
N.C.	8	9	19	7	21,105	21,966	-	5	-	2	-	-
S.C.	6	7	4	-	13,011	13,853	3	16	-	1	-	-
Ga.	33	-	2	1	24,283	29,256	-	-	-	-	-	-
Fla.	212	8	17	1	31,427	34,495	31	39	9	5	-	1
E.S. CENTRAL	17	11	30	7	44,831	47,021	21	35	5	3	-	-
Ky.	7	2	5	-	5,413	5,498	6	14	-	-	-	-
Tenn.	4	-	9	1	18,622	19,457	7	13	4	1	-	-
Ala.	4	7	14	6	14,397	14,485	6	6	1	2	-	-
Miss.	2	2	2	-	6,399	7,581	2	2	-	-	-	-
W.S. CENTRAL	176	14	43	4	70,358	79,608	64	34	6	35	-	16
Ark.	1	-	-	2	6,078	6,042	4	2	-	7	-	1
La.	18	2	6	-	15,942	14,750	1	6	-	3	-	1
Okla.	6	4	14	1	7,555	9,288	18	4	2	2	-	-
Tex.	151	8	23	1	40,783	49,528	41	22	4	23	-	14
MOUNTAIN	38	14	20	7	16,631	17,665	58	26	4	9	-	7
Mont.	-	3	-	-	717	749	-	2	-	-	-	-
Idaho	-	-	-	-	831	759	-	1	-	-	-	-
Wyo.	1	-	-	-	478	465	-	-	1	-	-	-
Colo.	20	8	7	-	4,780	5,034	10	6	-	3	-	-
N. Mex.	-	-	-	-	1,907	2,143	3	4	-	-	-	-
Ariz.	9	-	7	3	4,459	4,967	18	10	1	4	-	5
Utah	3	3	6	4	818	841	18	2	1	-	-	1
Nev.	5	-	-	-	2,641	2,707	9	1	1	2	-	1
PACIFIC	614	40	107	8	71,040	79,841	152	113	25	23	-	74
Wash.	32	6	4	-	4,946	6,213	1	1	1	-	-	3
Oreg.	5	-	-	-	4,288	4,318	16	7	5	-	-	1
Calif.	564	33	101	8	58,821	65,671	134	103	17	21	-	55
Alaska	1	-	-	-	1,780	2,026	-	1	1	-	-	-
Hawaii	12	1	2	-	1,205	1,613	1	1	1	2	-	15
Guam	-	U	-	-	95	103	U	U	U	U	U	-
P.R.	33	-	-	1	2,089	1,708	-	31	-	2	-	2
V.I.	-	U	-	-	271	179	U	U	U	U	U	-
Pac. Trust Terr.	-	U	-	-	-	-	U	U	U	U	U	-

N: Not notifiable U: Unavailable

TABLE III. (Cont'd.) Cases of specified notifiable diseases, United States, weeks ending August 18, 1984 and August 20, 1983 (33rd Week)

Reporting Area	Malaria	Measles (Rubeola)					Meningococcal Infections	Mumps		Pertussis			Rubella		
		Indigenous		Imported *		Total									
	Cum. 1984	1984	Cum. 1984	1984	Cum. 1984	Cum. 1983	Cum. 1984	1984	Cum. 1984	1984	Cum. 1984	Cum. 1983	1984	Cum. 1984	Cum. 1983
UNITED STATES	564	23	1,921	1	247	1,196	1,904	31	2,108	42	1,233	1,403	8	500	745
NEW ENGLAND	35	-	93	-	11	15	111	1	66	3	36	44	-	19	14
Maine	-	-	-	-	-	-	1	1	19	-	1	4	-	1	-
N.H.	-	-	34	-	3	3	6	-	15	-	8	7	-	1	4
Vt.	3	-	2	-	5	-	26	-	5	1	17	7	-	-	5
Mass.	19	-	47	-	-	4	37	-	10	2	10	21	-	17	5
R.I.	4	-	-	-	-	-	11	-	8	-	1	5	-	-	-
Conn.	9	-	10	-	3	8	30	-	9	-	1	-	-	-	-
MID ATLANTIC	90	1	111	1	30	91	334	2	244	3	110	272	3	178	133
Upstate N.Y.	22	-	21	-	10	9	115	-	60	2	63	86	-	101	24
N.Y. City	20	1	86	1†	14	52	69	2	18	-	5	42	3	59	86
N.J.	28	-	4	-	2	27	88	-	128	-	6	17	-	14	3
Pa.	20	-	-	-	4	3	62	-	38	1	36	127	-	4	20
E.N. CENTRAL	45	1	584	-	68	631	307	9	881	6	331	321	-	72	113
Ohio	11	-	3	-	5	85	107	2	429	-	57	86	-	2	2
Ind.	1	-	2	-	1	400	38	3	49	6	220	33	-	2	23
Ill.	14	-	181	-	1	138	61	-	160	-	20	120	-	42	47
Mich.	9	1	402	-	54	7	60	1	156	-	20	21	-	18	15
Wis.	10	-	16	-	7	1	41	3	67	-	14	61	-	8	26
W.N. CENTRAL	18	-	3	-	7	1	118	-	83	11	102	88	2	31	30
Minn.	6	-	-	-	3	1	22	-	4	-	12	33	-	2	6
Iowa	1	-	-	-	-	-	21	-	19	1	8	5	-	1	-
Mo.	7	-	3	-	-	-	36	-	7	1	14	18	-	-	-
N. Dak.	1	-	-	-	-	-	1	-	1	-	-	1	-	3	-
S. Dak.	-	-	-	-	-	-	6	-	-	-	7	5	-	-	-
Nebr.	1	-	-	-	-	-	9	-	3	9	11	-	-	-	-
Kans.	2	-	-	-	4	-	23	-	49	-	50	26	2	25	24
S. ATLANTIC	88	-	14	-	24	190	394	5	149	1	95	191	-	21	89
Del.	4	-	-	-	-	-	3	-	2	-	3	3	-	-	-
Md.	22	-	6	-	11	10	31	2	29	-	8	25	-	1	1
D.C.	1	-	-	-	5	-	5	-	-	-	-	-	-	-	-
Va.	23	-	1	-	2	23	46	-	14	-	12	45	-	-	2
W. Va.	1	-	-	-	-	-	4	-	28	-	9	5	-	-	-
N.C.	6	-	-	-	-	1	59	-	19	-	17	21	-	-	10
S.C.	1	-	-	-	-	4	41	-	2	-	1	13	-	-	1
Ga.	8	-	-	-	-	8	78	-	17	-	7	55	-	2	11
Fla.	24	-	7	-	6	144	127	3	38	1	39	24	-	18	64
E.S. CENTRAL	6	-	1	-	2	6	103	1	41	-	8	17	-	9	11
Ky.	-	-	1	-	-	1	41	1	9	-	1	6	-	3	10
Tenn.	2	-	-	-	2	-	24	-	12	-	4	4	-	-	-
Ala.	4	-	-	-	-	5	25	-	6	-	-	3	-	3	1
Miss.	-	-	-	-	-	-	13	-	14	-	3	4	-	3	-
W.S. CENTRAL	52	7	489	-	22	73	202	2	112	6	242	260	-	13	95
Ark.	-	-	-	-	-	12	27	-	5	-	13	17	-	3	-
La.	6	-	-	-	-	25	44	-	-	-	4	5	-	-	9
Okla.	7	-	-	-	8	1	23	N	N	-	208	192	-	-	-
Tex.	39	7	489	-	14	35	108	2	107	6	17	46	-	10	86
MOUNTAIN	18	-	91	-	39	4	65	2	203	5	91	139	2	16	27
Mont.	1	-	-	-	-	-	2	1	8	1	18	1	-	-	3
Idaho	2	-	-	-	23	-	6	-	9	2	7	5	-	1	8
Wyo.	-	-	-	-	-	1	2	-	1	-	3	6	-	2	2
Colo.	1	-	-	-	6	2	24	1	16	-	32	90	-	2	-
N. Mex.	1	-	66	-	8	-	7	N	N	1	6	9	-	-	-
Ariz.	9	-	-	-	-	1	14	-	104	1	17	14	1	1	6
Utah	4	-	23	-	2	-	7	-	5	-	6	14	-	6	7
Nev.	-	-	-	-	-	-	3	-	2	-	2	-	1	4	1
PACIFIC	202	14	535	-	44	185	270	9	349	7	218	71	1	141	233
Wash.	6	10	120	-	13	5	41	-	36	7	56	13	-	1	9
Oreg.	8	-	-	-	-	9	39	N	N	-	14	6	-	1	13
Calif.	185	1	270	-	27	168	182	8	288	-	79	51	1	135	210
Alaska	-	-	-	-	-	2	7	1	7	-	-	-	-	1	1
Hawaii	3	3	145	-	4	1	1	-	18	-	69	1	-	3	-
Guam	1	U	83	U	2	2	1	U	5	U	-	-	U	2	-
P.R.	4	-	-	-	-	81	3	3	106	-	-	9	-	6	3
V.I.	-	U	-	U	-	5	-	U	3	U	-	-	U	-	2
Pac. Trust Terr.	-	U	-	U	-	-	-	U	-	U	-	-	U	-	-

*For measles only, imported cases includes both out-of-state and international importations.

N: Not notifiable U: Unavailable †International §Out-of-state

TABLE III. (Cont'd.) Cases of specified notifiable diseases, United States, weeks ending August 18, 1984 and August 20, 1983 (33rd Week)

Reporting Area	Syphilis (Civilian) (Primary & Secondary)		Toxic-shock Syndrome	Tuberculosis		Tula-remia	Typhoid Fever	Typhus Fever (Tick-borne) (RMSF)	Rabies, Animal
	Cum. 1984	Cum. 1983	1984	Cum. 1984	Cum. 1983	Cum. 1984	Cum. 1984	Cum. 1984	Cum. 1984
UNITED STATES	17,453	20,432	7	13,385	14,821	197	195	550	3,234
NEW ENGLAND	331	432	-	385	427	4	9	3	28
Maine	3	13	-	19	26	-	-	-	10
N.H.	12	18	-	26	29	-	-	-	8
Vt.	1	1	-	8	6	-	-	-	-
Mass.	191	270	-	207	225	4	7	3	5
R.I.	12	14	-	29	32	-	-	-	-
Conn.	112	116	-	96	109	-	2	-	5
MID ATLANTIC	2,365	2,606	2	2,494	2,600	-	28	16	247
Upstate N.Y.	184	215	-	425	402	-	10	6	43
N.Y. City	1,477	1,540	-	983	1,064	-	7	1	-
N.J.	425	502	-	548	554	-	7	3	12
Pa.	299	349	2	538	580	-	4	6	192
E.N. CENTRAL	805	1,102	2	1,793	1,922	3	28	37	140
Ohio	161	298	1	341	304	-	5	23	14
Ind.	87	80	-	194	199	-	2	4	14
Ill.	249	534	-	739	850	3	9	8	56
Mich.	259	140	1	408	469	-	4	2	14
Wis.	49	50	-	111	100	-	6	-	42
W.N. CENTRAL	251	242	1	405	470	71	7	38	529
Minn.	72	96	-	67	91	1	2	-	56
Iowa	11	13	-	45	45	-	-	4	108
Mo.	122	92	-	204	234	38	4	10	40
N. Dak.	8	2	-	9	5	-	-	-	113
S. Dak.	-	9	1	15	31	31	-	4	133
Nebr.	12	11	-	20	19	-	-	3	35
Kans.	26	19	-	46	45	3	1	17	44
S. ATLANTIC	5,184	5,381	-	2,759	2,936	5	26	262	898
Del.	13	22	-	37	24	-	-	-	4
Md.	322	353	-	282	232	-	2	28	483
D.C.	209	241	-	103	118	-	6	-	-
Va.	265	376	-	277	312	-	7	42	150
W. Va.	12	18	-	85	90	-	-	6	31
N.C.	528	508	-	421	426	1	1	91	13
S.C.	490	328	-	338	263	-	1	67	35
Ga.	885	992	-	389	534	4	1	26	118
Fla.	2,470	2,545	-	829	937	-	8	2	64
E.S. CENTRAL	1,172	1,402	-	1,225	1,319	3	5	53	166
Ky.	85	93	-	286	313	-	2	8	44
Tenn.	316	397	-	382	397	3	2	27	61
Ala.	399	558	-	369	346	-	1	12	61
Miss.	392	354	-	188	263	-	-	6	-
W.S. CENTRAL	4,298	5,381	-	1,532	1,770	85	11	127	876
Ark.	109	133	-	166	198	62	-	19	70
La.	764	1,120	-	194	302	6	1	1	39
Okla.	140	141	-	155	151	15	2	84	83
Tex.	3,285	3,987	-	1,017	1,121	2	8	23	484
MOUNTAIN	390	429	2	350	405	20	10	11	179
Mont.	2	5	-	14	34	1	1	8	86
Idaho	15	6	-	23	23	6	-	1	6
Wyo.	4	10	-	-	10	-	-	2	9
Colo.	93	94	1	36	52	5	2	-	26
N. Mex.	53	126	-	66	83	1	3	-	9
Ariz.	144	105	-	186	153	3	3	-	31
Utah	12	14	1	29	28	2	-	-	2
Nev.	67	69	-	16	22	2	1	-	10
PACIFIC	2,657	3,457	-	2,442	2,772	6	73	3	371
Wash.	83	123	-	124	147	-	2	-	1
Oreg.	75	83	-	105	118	2	1	1	1
Calif.	2,445	3,198	-	2,040	2,319	4	65	1	363
Alaska	3	7	-	43	36	-	1	1	6
Hawaii	51	46	-	130	162	-	4	-	-
Guam	-	-	U	5	5	-	-	-	-
P.R.	500	598	-	254	318	-	3	-	40
V.I.	8	16	U	2	2	-	3	-	-
Pac. Trust Terr.	-	-	U	-	-	-	-	-	-

U: Unavailable

TABLE IV. Deaths in 121 U.S. cities,* week ending August 18, 1984 (33rd Week Ending)

Reporting Area	All Causes, By Age (Years)						P&I** Total
	All Ages	≥65	45-64	25-44	1-24	<1	
NEW ENGLAND	637	433	125	39	16	23	44
Boston, Mass.	198	119	41	17	9	11	18
Bridgeport, Conn.	33	25	6	1	1	-	2
Cambridge, Mass.	20	19	1	-	-	-	-
Fall River, Mass.	31	20	9	1	1	-	-
Hartford, Conn.	58	37	12	6	1	-	3
Lowell, Mass.	19	11	5	2	1	-	-
Lynn, Mass.	19	12	6	1	-	-	1
New Bedford, Mass.	19	17	1	1	-	-	3
New Haven, Conn.	58	35	7	4	1	11	1
Providence, R.I.	62	48	13	1	-	-	5
Somerville, Mass.	4	2	2	-	-	-	-
Springfield, Mass.	35	30	2	2	-	1	6
Waterbury, Conn.	29	23	5	1	-	-	2
Worcester, Mass.	54	35	15	2	2	-	3
MID. ATLANTIC	2,445	1,588	565	197	60	55	91
Albany, N.Y.	51	34	11	3	2	1	-
Allentown, Pa.	14	13	1	-	-	-	-
Buffalo, N.Y.	129	84	31	7	4	3	17
Camden, N.J.	45	25	14	1	1	4	-
Elizabeth, N.J.	19	9	9	-	-	1	1
Erie, Pa.†	42	30	10	1	1	-	1
Jersey City, N.J.	36	19	7	7	-	3	-
N.Y. City, N.Y.	1,310	846	288	118	33	25	42
Newark, N.J.	62	22	21	16	1	2	2
Paterson, N.J.	21	16	3	2	-	-	-
Philadelphia, Pa.†	305	187	74	22	12	10	13
Pittsburgh, Pa.†	68	47	16	2	1	2	1
Reading, Pa.	29	23	6	-	-	-	3
Rochester, N.Y.	122	84	24	9	2	3	7
Schenectady, N.Y.	25	21	4	-	-	-	-
Scranton, Pa.†	25	18	6	1	-	-	1
Syracuse, N.Y.	71	44	22	3	1	1	1
Trenton, N.J.	29	19	7	3	-	-	1
Utica, N.Y.	20	10	7	1	2	-	1
Yonkers, N.Y.	22	17	4	1	-	-	-
E.N. CENTRAL	2,022	1,428	374	92	61	58	79
Akron, Ohio	28	21	5	1	-	1	-
Canton, Ohio	49	32	14	3	-	-	4
Chicago, Ill. §	420	287	2	4	12	6	9
Cincinnati, Ohio	171	119	29	8	4	11	12
Cleveland, Ohio	154	89	43	11	5	6	1
Columbus, Ohio	86	49	21	5	5	6	7
Dayton, Ohio	101	60	26	5	5	5	-
Detroit, Mich.	241	138	62	21	11	9	8
Evansville, Ind.	55	48	5	1	1	-	2
Fort Wayne, Ind.	50	44	5	-	-	1	7
Gary, Ind.	13	8	4	-	-	1	-
Grand Rapids, Mich.	67	47	13	2	4	1	4
Indianapolis, Ind.	142	84	44	6	3	5	-
Madison, Wis.	30	20	7	2	1	-	2
Milwaukee, Wis.	117	80	29	6	1	1	4
Peoria, Ill.	45	27	12	2	4	-	7
Rockford, Ill.	46	32	10	2	2	-	5
South Bend, Ind.	56	36	14	4	1	1	3
Toledo, Ohio	87	67	11	3	2	4	4
Youngstown, Ohio	64	40	18	6	-	-	-
W.N. CENTRAL	706	452	165	42	20	27	25
Des Moines, Iowa	81	58	14	6	2	1	3
Duluth, Minn.	31	24	6	1	-	-	2
Kansas City, Kans.	33	18	8	3	2	2	2
Kansas City, Mo.	113	67	32	8	2	4	5
Lincoln, Nebr.	33	28	2	1	1	1	-
Minneapolis, Minn.	78	44	15	6	6	7	-
Omaha, Nebr.	83	58	17	5	1	2	2
St. Louis, Mo.	129	83	36	5	1	4	2
St. Paul, Minn.	61	38	15	1	2	5	2
Wichita, Kans.	64	34	20	6	3	1	7
S. ATLANTIC	1,157	723	278	74	40	42	50
Atlanta, Ga.	142	84	39	12	3	4	4
Baltimore, Md.	222	127	60	19	9	7	4
Charlotte, N.C.	51	33	12	4	2	-	6
Jacksonville, Fla.	105	61	24	7	7	6	11
Miami, Fla.	141	88	42	6	4	1	1
Norfolk, Va.	43	15	17	2	4	5	1
Richmond, Va.	70	49	10	5	3	3	7
Savannah, Ga.	55	39	12	3	1	-	5
St. Petersburg, Fla.	103	85	12	2	2	2	6
Tampa, Fla.	80	48	21	2	3	6	4
Washington, D.C.	111	70	21	10	2	8	1
Wilmington, Del.	34	24	8	2	-	-	-
E.S. CENTRAL	712	423	188	41	31	29	34
Birmingham, Ala.	91	49	29	4	5	4	2
Chattanooga, Tenn.	56	38	13	2	2	1	1
Knoxville, Tenn.	77	47	17	5	3	5	4
Louisville, Ky.	104	66	26	7	1	4	4
Memphis, Tenn.	163	102	47	5	6	3	13
Mobile, Ala.	54	28	12	4	5	5	-
Montgomery, Ala.	55	32	11	5	3	4	1
Nashville, Tenn.	112	61	33	9	6	3	9
W.S. CENTRAL	1,314	751	331	112	62	58	47
Austin, Tex.	52	29	10	6	4	3	6
Baton Rouge, La.	30	20	6	1	2	1	-
Corpus Christi, Tex.	72	45	13	3	6	5	-
Dallas, Tex.	187	99	43	25	9	11	5
El Paso, Tex.	66	34	16	5	7	4	3
Fort Worth, Tex.	92	56	27	6	2	1	2
Houston, Tex.	288	133	77	33	13	12	5
Little Rock, Ark.	92	60	22	5	1	4	7
New Orleans, La.	105	62	28	10	4	1	-
San Antonio, Tex.	151	81	45	13	7	5	11
Shreveport, La.	94	58	24	2	4	6	4
Tulsa, Okla.	105	74	20	3	3	5	4
MOUNTAIN	614	377	136	58	25	18	30
Albuquerque, N.Mex.	72	35	15	14	6	2	9
Colo. Springs, Colo.	32	18	11	-	2	1	1
Denver, Colo.	109	66	24	11	3	5	5
Las Vegas, Nev.	64	41	11	7	4	1	3
Ogden, Utah	15	9	4	1	-	1	-
Phoenix, Ariz.	158	97	40	12	6	3	2
Pueblo, Colo.	21	13	6	2	-	-	1
Salt Lake City, Utah	51	31	9	7	2	2	-
Tucson, Ariz.	92	67	16	4	2	3	9
PACIFIC	1,768	1,138	391	115	74	48	107
Berkeley, Calif.	16	14	-	2	-	-	1
Fresno, Calif.	62	40	13	3	4	2	7
Glendale, Calif.	34	28	5	-	-	1	1
Honolulu, Hawaii	75	44	20	3	5	3	1
Long Beach, Calif.	86	55	19	6	3	3	-
Los Angeles, Calif.	482	302	112	35	22	8	20
Oakland, Calif.	76	52	15	4	3	2	9
Pasadena, Calif.	28	24	3	1	-	-	2
Portland, Oreg.	125	82	25	7	6	5	7
Sacramento, Calif.	117	68	35	8	5	1	9
San Diego, Calif.	126	69	30	15	6	5	15
San Francisco, Calif.	151	102	32	11	1	5	4
San Jose, Calif.	140	96	28	10	4	2	14
Seattle, Wash.	138	87	28	8	12	3	5
Spokane, Wash.	62	46	10	1	2	3	7
Tacoma, Wash.	50	29	16	1	1	3	5
TOTAL	11,375††	7,293	2,553	770	389	356	507

* Mortality data in this table are voluntarily reported from 121 cities in the United States, most of which have populations of 100,000 or more. A death is reported by the place of its occurrence and by the week that the death certificate was filed. Fetal deaths are not included.

** Pneumonia and influenza

† Because of changes in reporting methods in these 4 Pennsylvania cities, these numbers are partial counts for the current week. Complete counts will be available in 4 to 6 weeks.

†† Total includes unknown ages.

§ Data not available. Figures are estimates based on average of past 4 weeks.

Cancer Patients — Continued

Although nocardiosis is usually a pulmonary infection in humans, *Nocardia* species have been described as a cause of multiple cutaneous abscesses and draining sinus tracts in cattle (*2*). However, *N. asteroides* has rarely been reported as a cause of subcutaneous abscess in humans in North America.

Treatment of abscesses caused by *N. asteroides* should include incision and drainage and use of an antimicrobial agent to which *N. asteroides* is sensitive, such as trimethoprim/sulfamethoxazole or minocycline (*3*). Duration of antimicrobial therapy is uncertain.

Patients receiving immunosuppressives in preparation for organ transplantation have been reported to be at higher risk for disseminated *Nocardia* infections, and it is likely that oncology patients, such as those attending this immunotherapy clinic, are also at higher risk. Although most of the infections in this cluster were due to *N. asteroides*, other bacteria were isolated, both from the patients and the protein injections. Physicians should be alert to the possibility of infections in patients receiving immunotherapy and should report such episodes to state health departments.

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Epidemiologic Notes and Reports

Brain Cancer — Texas

Because of concern among local physicians in Cooke County, Texas,* about an apparent excess of brain cancers, incidence and mortality rates of these cancers were evaluated. Data were reviewed during 1973-1982 from county death certificates, cancer registry forms for county residents, and hospital records in Cooke and surrounding counties and major referral centers in Dallas. Pathologic diagnoses in medical records or on death certificates coded 191, 192.0-192.3, or 192.9 using either the International Classification of Diseases, Adapted, eighth (ICDA-8) or ninth (ICD-9) revisions, were considered cases of brain cancer. Information on cancer metastatic to the brain was also reviewed. The expected number of cases was calculated by using the National Cancer Institute's Surveillance, Epidemiology, and End Results Program (SEER) incidence and mortality rates for all races and geographic areas (*1*) and applying them to the 1980 population figures for Cooke County. The number of cancer cases observed were then compared to the number expected.

Brain cancer was recorded as the cause of death on 11 death certificates; cancer at another site in the nervous system was recorded on five. These 16 deaths are slightly, though not significantly, more than would be expected in a population of this age and sex distribution. Twelve residents had newly diagnosed brain cancer, and one had cancer of another nervous-system

*Cooke County is predominantly rural and is located north of Dallas on the Oklahoma border.

Brain Cancer — Continued

site. The occurrences of these 13 cancers in this population are not higher than would be expected. Diagnoses of cases occurred relatively randomly over the 10-year period (Figure 1).

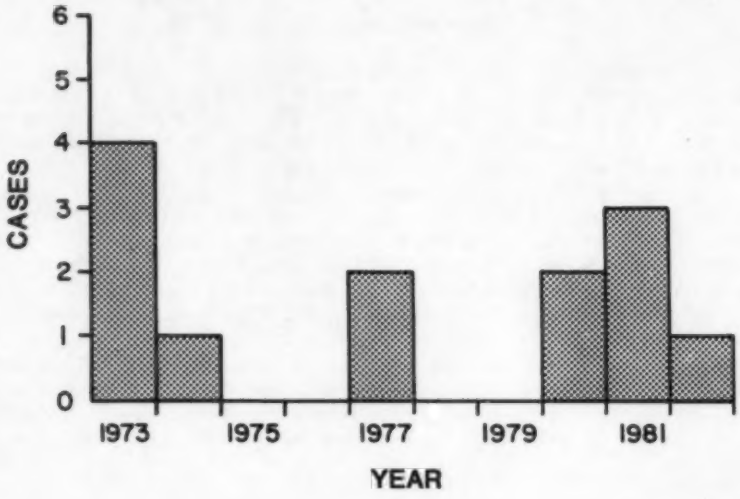
The number of persons with brain cancer in Cooke County may have appeared high because: (1) the brain is a frequent site of metastasis, and metastasis to the brain is frequently the cause of death; (2) errors occur in classifying the causes of death on death certificates; (3) residents of rural areas often are more aware of serious illnesses and deaths among the local population than are residents of urban communities.

Reported by A Menchetti, Texas Statewide Registry Program, W Barrington, Jr, Bureau of Vital Statistics, CE Alexander, MD, State Epidemiologist, Texas Dept of Health; Div of Field Svcs, Epidemiology Program Office, Cancer Br, Chronic Diseases Div, Center for Environmental Health, CDC.

Editorial Note: In 1984, an estimated 12,800 Americans may develop cancers of the brain or other parts of the central nervous system; an estimated 10,400 may be fatal (*2*). These cancers represent approximately 1.6% of all newly diagnosed cancers and approximately 2.3% of all deaths from cancer in the United States. Whites have higher age-adjusted incidence and mortality rates than persons of other races, and males have higher rates than females. Primary brain cancers occur from five to 25 times more often than primary cancers of other parts of the central nervous system (*1*).

Although patients with certain rare inherited conditions, such as tuberous sclerosis and von Recklinghausen's neurofibromatosis, are at an increased risk for nervous-system cancers, most patients with these cancers show no evidence for causative genetic factors. Viruses and several chemicals, including the N-nitrosamides and 7,12-dimethylbenz[a]anthracene, produce nervous-system cancers in experimental animals. Rubber workers, vinyl chloride workers, and petrochemical workers appear to have an increased risk of brain cancers (*3,4*). Exposure to x-ray therapy and immunosuppression may also increase this risk (*3*). The observed low survival rate for these cancers—despite surgery, radiotherapy, and chemotherapy—

FIGURE 1. Primary brain cancers among residents — Cooke County, Texas, 1973-1982



Brain Cancer – Continued

indicates a need for further studies to evaluate the risk factors for the various histologic types of nervous-system cancers.

Despite the concern among Cooke County physicians, no statistically significant excess in brain cancer incidence and mortality was found. Incidence was similar to that expected, and the number had not increased recently. The number of deaths was only slightly higher than expected. Death rates from brain and other nervous system cancers among white males and females in Cooke County did not significantly exceed comparable rates in Texas and in the United States from 1950 through 1979 (*5*). Counting secondary cancers metastatic to the brain as primary brain cancers, classifying nonresidents with previously diagnosed brain cancer as residents, and showing an incorrect cause of death on the death certificate may explain why the observed number of persons with brain cancer appeared excessive to local physicians. This study confirms the need for verifying each diagnosis of cancer in an apparent cluster of cases and counting only those cases among the true population at risk.

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The data in this report are provisional, based on weekly reports to CDC by state health departments. The reporting week concludes at close of business on Friday; compiled data on a national basis are officially released to the public on the succeeding Friday.

The editor welcomes accounts of interesting cases, outbreaks, environmental hazards, or other public health problems of current interest to health officials. Such reports and any other matters pertaining to editorial or other textual considerations should be addressed to: ATTN: Editor, *Morbidity and Mortality Weekly Report*, Centers for Disease Control, Atlanta, Georgia 30333.

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